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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEVEN J. HARRIS,
MICHAEL C. HEBBRON, and
IAN M. STURLAND

Appeal 2009-003895
Application 10/529,227
Technology Center 1700

Decided: September 14, 2009

Before CATHERINE Q. TIMM, MICHEAL P. COLAIANNI, and JEFFREY B. ROBERTSON, *Administrative Patent Judges.*

TIMM, *Administrative Patent Judge.*

DECISION ON APPEAL

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1-22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The invention relates to a microsensor, an apparatus comprising the combination of a microsensor and a metallic component, an aircraft including the microsensor and metallic component, and a method of manufacture of a microsensor. Claim 1 is illustrative of the microsensor:

1. A microsensor for detecting corrosive media acting on a metallic material when mounted in situ adjacent a location in the metallic material, the microsensor including:

at least two common terminals; and

a plurality of corrosive tracks, each of the tracks electrically connecting said at least two common terminals, exposed to the corrosive media and comprising a patterned conductive thin film track following a path which includes a plurality of mutually inverted generally U-shaped bends.

The Examiner maintains rejections of all the claims, i.e., claims 1-22 under 35 U.S.C. § 103(a). Specifically, the Examiner rejects claims 1-7 under 35 U.S.C. § 103(a) as unpatentable over Kim (US 6,383,451, issued May 7, 2002) in view of Ansuini (US 4,780,664, issued Oct. 25, 1988). To reject claims 8-10, the Examiner further relies upon Kordecki (EP 0 932 037 A2, pub. Jul. 28, 1999). To reject claims 11 and 12, the Examiner further relies upon Agarwala (US 5,338,432, issued Aug. 16, 1994). To reject claims 13-15, the Examiner further relies upon Glass '773 (US 5,437,773, issued Aug. 1, 1995). To reject claims 16-20, the Examiner further relies upon Glass '773 and Kordecki. To reject claims 21 and 22, the Examiner further relies upon Glass '773 and Glass '859 (US 5,409,859, issued Apr. 25, 1995).

The Examiner finds that Kim describes an electric resistance sensor for measuring corrosion rate having a plurality of corrosive tracks 41 (Ans.

4). The Examiner further finds that Ansuini describes corrosive tracks in a serpentine formation for saving space (Ans. 5). The Examiner concludes that "[i]t would have been obvious to modify the Kim device to include bends with a minimum radius of curvature which is greater than half the average width of the corrosive tracks [as recited in claim 6] such as taught by Ansuini in order to provide a corrosive track configuration which saves space." (Ans. 5.) The Examiner further concludes that "with regard to claim 1, if the Kim device is taken to not have a plurality of mutually inverted generally U-shaped bends, it would have been obvious to modify the Kim device to include such a configuration with the plural tracks of Kim, such as taught by Ansuini, in order to save space." (Ans. 5.)

Appellants confine their arguments to the rejection of claims 1 and 6 over Kim and Ansuini. According to Appellants, the Examiner has failed to indicate where Kim teaches the "U-shaped bends" of claim 1 and the bends having "a minimum radius of curvature which is greater than half the average width of said corrosive tracks" recited in claim 6 (Br. 5-7; Reply Br. 2-3),[1] Kim teaches away from U-shaped bends (Br. 7 and 13-14; Reply Br. 3-4), Ansuini fails to teach a "plurality of corrosive tracks" (Br. 8; Reply Br. 4-5), Ansuini teaches away from a "plurality of corrosive tracks" (Br. 9 and 13-14; Reply Br. 5-6), even if Kim and Ansuini were combined, they would not disclose all the claimed elements (Br. 10), and the Examiner fails to identify a reason or motivation for combining the Kim and Ansuini references (Br. 11-12; Reply Br. 6-9).

[1] Appellants refer to claim 7, but the limitation at issue is found in claim 6.

As Appellants confine their arguments to claims 1 and 6, we select those claims to decide the issues on appeal for the rejection over Kim and Ansuini in accordance with 37 C.F.R. § 41.37(c)(1)(vii).

II. DISPOSTIVE ISSUE

As a first matter, we note that there is no dispute that Kim fails to teach the U-shaped bends of claim 1 or the radius of curvature of claim 6 (Compare Ans. 5 with Br. 5-7 and Reply Br. 6). Nor is there any dispute that Ansuini does not describe "a plurality of corrosive tracks" as required by claim 1 (*Compare* Ans. 5 with Br. 8 and Reply Br. 6).

The issue is: Have Appellants established that the Examiner reversibly erred in finding a reason to form Kim's plurality of tracks so as to have U-shaped bends as taught by Ansuini and further finding that the references do not "teach away" from doing so?

We answer this question in the negative.

III. PRINCIPLES OF LAW

"[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill." *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007). "[A] prior art reference must be 'considered together with the knowledge of one of ordinary skill in the pertinent art.'" *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (quoting *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

When the prior art teaches away from a combination, that combination is more likely to be nonobvious, *KSR*, 550 U.S. 398, 417, but to teach away, a reference must discourage one of ordinary skill in the art from

following the path set out in the reference, or lead that person in a direction divergent from the path that was taken by the applicant, *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994), or teach away from a use that would render the result inoperable. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001). While the "teach away" test is a useful general rule, care must be taken not to adopt it in the abstract. *Gurley*, 27 F.3d at 553. "Although a reference that teaches away is a significant factor to be considered in determining unobviousness, the nature of the teaching is highly relevant, and must be weighed in substance." *Id.*

IV. FINDINGS OF FACT

The following enumerated findings of fact ("FF") are of particular relevance:

1. Kim describes an electric resistance sensor in thin film shape including a thin line unit consisting of a plurality of thin lines (Kim, col. 1, ll. 42-45).
2. Figure 1 of Kim is reproduced below:

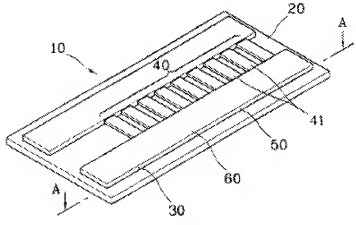

Fig. 1 is a perspective view of Kim's sensor (Kim, col. 2, ll. 7-8).

3. Figure 1 shows a thin line unit 40 including a plurality of thin lines 41 (Kim, col. 2, ll. 43-46).
4. The Examiner finds, and Appellants do not dispute, that thin lines 41 are "a plurality of corrosive tracks" as required by claim 1 (Ans. 4; Br. and Reply Br, generally).
5. Kim depicts the lines 41 as straight and states that the lines are formed identically so that each electric current route has the same resistance, but Kim is otherwise silent with respect to the path the lines take (Kim, Fig. 1 and col. 3, ll. 5-8).
6. Ansuini is also directed to an electrical resistance corrosion sensor (Ansuini, col. 1, ll. 14-16).
7. Figure 2 of Ansuini is reproduced below:

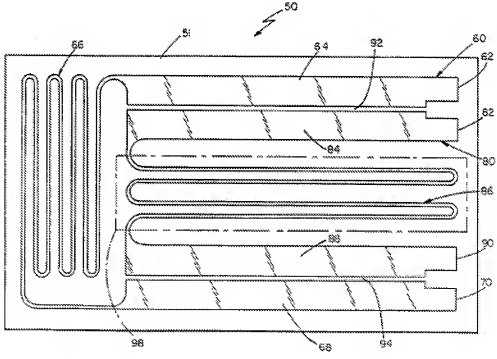

Fig. 2 of is a diagram of Ansuini's corrosion sensor (Ansuini, col. 3, ll. 65-66)

8. The Examiner finds, and Appellants do not dispute, that Ansuini describes corrosive tracks 66 and 86 in a serpentine formation with U-shaped bends as required by claim 1 and the radius of curvature required by claim 6 (Ans. 5; Br and Reply Br., generally; Ansuini, col. 4, ll. 51-66)). The tracks are connected to individual terminals (terminals 62 and 70 for track 66 and terminals 82 and 90 for track 86) (Fig. 2; col. 4, ll. 51-66).

9. Ansuini explains that the exposed strip of metal in conventional electrical resistance sensors must be long in order to make the initial resistance measurable and there is a need for a corrosion sensor which is small (Ansuini, col. 2, ll. 33-60). The alternative to making the exposed strips long is to reduce the thickness of the strip, but reducing the thickness shortens sensor life (Ansuini, col. 2, ll. 52-56). The serpentine configuration of the corrosive tracks or choke points saves space (Ansuini, col. 3, ll. 22-25 and col. 4, ll. 57-59).

V. ANALYSIS

Both Kim and Ansuini are directed to electrical resistance sensors (FF 1 and 7). As explained by Ansuini, such sensors use an exposed strip of metal to measure electrical resistance (FF 10). The metal strip must be either long or thin (FF 10). But there are problems: thin strips shorten sensor life, long strips are space consuming (FF 10). Ansuini, therefore, articulates a solution to the problem of space consumption: configure the strip to follow a serpentine path (plurality of mutually inverted generally U-shaped bends) (FF 10). Ansuini expressly states that such an arrangement saves space (FF 10). Ansuini, therefore, articulates a solution to a known problem in the art of electrical resistance sensors.

Given that Kim and Ansuini are both directed to electrical resistance sensors for detecting corrosion, one of ordinary skill in the art would understand the pertinence of Ansuini's space saving solution to the sensor of Kim. The evidence supports the Examiner's finding of a reason to modify the electrical sensor of Kim so that the corrosive tracks 41 follow the serpentine path suggested by Ansuini.

Further, the evidence supports the Examiner's finding that the references do not "teach away" from the combination. Kim indicates that an electrical resistance sensor can be configured with a plurality of tracks and does not limit the configuration of the tracks (FF 2-5). Ansuini indicates that serpentine pathways are operable in electrical resistance sensors (FF 7-9). The fact that one reference is silent as to what another reference teaches is not a "teaching away" within the meaning of 35 U.S.C. § 103(a).

Appellants have not established that the Examiner reversibly erred in finding a reason to form Kim's plurality of tracks so as to have U-shaped bends of claim 1 and the radial curvature of claim 6 as taught by Ansuini and further have not established that the Examiner reversibly erred in finding that the references do not "teach away" from doing so.

Appellants reply upon the above arguments for all the rejections (Br.. and Reply Br., generally). Therefore, we need not discuss the other references cited by the Examiner. The above, discussion applies to all of the rejections.

VI. CONCLUSION

We sustain all of the rejections maintained by the Examiner in the Answer.

VII. DECISION

The decision of the Examiner is affirmed.

VIII. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal maybe extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

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